

# **Plasma Apparatus and Method Capable of Adaptive Impedance Matching**

## **ABSTRACT OF THE INVENTION**

A plasma apparatus capable of adaptive impedance matching comprises a plasma reactor which can produce plasma to proceed with CVD( chemical vapor deposition ) process, a bi-polar electrostatic chuck which locates inside the plasma reactor and is used to support and secure a wafer, an alternating current bias power supply which connects to the bi-polar electrostatic chuck supplies the voltage potential bias for ion-bombardment from plasma, and an impedance-matching circuit which connects the alternating current bias power supply to the bi-polar electrostatic chuck is used to balance the inner electrode power output and the outer electrode power output of the bi-polar electrostatic chuck.